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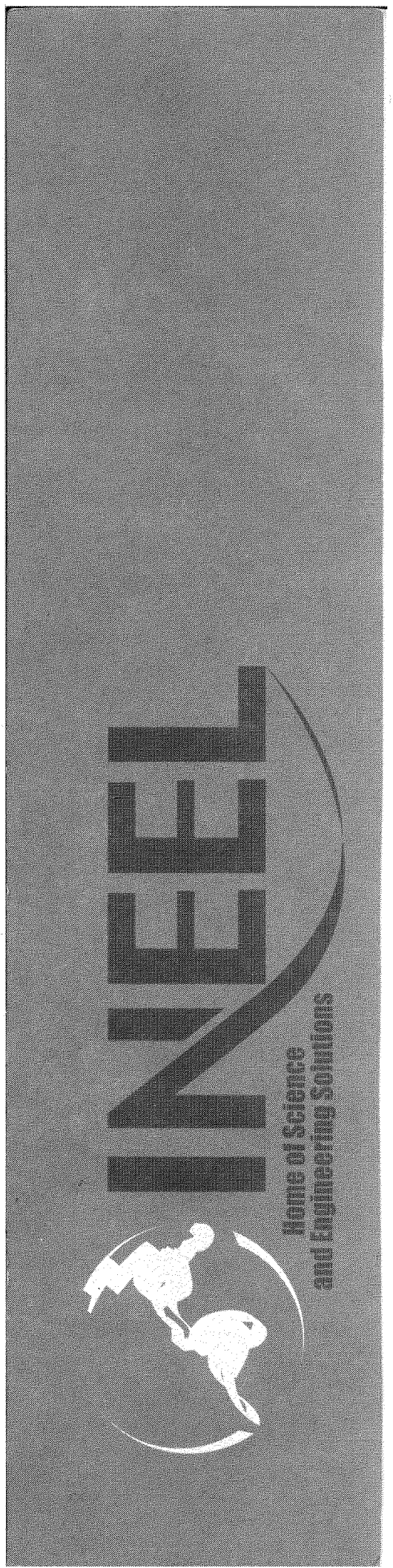
Project Close-out Report for Waste Area Group 2, Test Reactor Area

September 2003



Idaho National Engineering and Environmental Laborafoty
Bechtel BWXT Idaho, LLC

INEEL/EXT-03-00028
Revision 0

Project Close-out Report for Waste Area Group 2, Test Reactor Area

September 2003

Idaho National Engineering and Environmental Laboratory
Idaho Completion Project
Idaho Falls, Idaho 83415

Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
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Project Close-out Report for Waste Area Group 2, Test Reactor Area

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Approved **by**

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ABSTRACT

This report documents that the review of all Comprehensive Environmental Response, Compensation, and Liability Act requirements for the Waste Area Group 2 sites at the Test Reactor Area at the Idaho National Engineering and Environmental Laboratory has been completed and all requirements have been met. This report also provides a guide to documentation prepared to satisfy the requirements.

In addition to applicable requirements and associated documentation, this report includes the activities required to continue into the hture and the assignment of responsibilities to the Idaho Completion Project and the Nuclear Energy organization.

CONTENTS

FIGURES

TABLES

ACRONYMS

ATR	Advanced Test Reactor
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOE-ID	U.S. Department of Energy Idaho Operations Office
EDMS	Electronic Document Management System
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
ETR	Engineering Test Reactor
FFA/CO	Federal Facility Agreement and Consent Order
FY	fiscal year
IC	institutional control
IDEQ	Idaho Department of Environmental Quality
IDHW	Idaho Department of Health and Welfare
INEEL	Idaho National Engineering and Environmental Laboratory
MCL	maximum contaminant level
MTR	Materials Test Reactor
NFA	no further action
OU	operable unit
PCB	polychlorinated biphenyl
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RD/RA	remedial design/remedial action
RI/FS	remedial investigatiodfeasibility study
ROD	Record of Decision
TRA	Test Reactor Area
USGS	United States Geological Survey
WAG	waste area group

Project Close-out Report for Waste Area Group 2, Test Reactor Area

1. INTRODUCTION

This report has been prepared to document that the review of all Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements for the Waste Area Group (WAG) 2 sites at the Test Reactor Area (TRA) (see Figure 1) at the Idaho National Engineering and Environmental Laboratory (INEEL) has been completed and all requirements have been met. The review is part of the WAG 2 close-out evaluation. This report also provides a guide to documentation prepared to satisfy these requirements. The requirements and supporting documentation were developed in accordance with the *Federal Facility Agreement and Consent Order for the Idaho National Engineering and Environmental Laboratory* (DOE-ID 1991a).

In addition to applicable requirements and associated documentation, this report includes the activities required to continue into the hture and the assignment of responsibilities to the Idaho Completion Project and the Nuclear Energy organization. These activities and responsibilities include groundwater monitoring; operations and maintenance, including institutional controls; and related inspections and reporting. This report includes contingency action for excavation and disposal at two sites, continuing 5-year reviews, outstanding actions to be performed, and details regarding how newly identified sites will be investigated and remediated or controlled (as applicable). It also includes the enforceable milestones and their associated completion dates.

In order to prepare this report, the following activities were performed:

- Review of all WAG 2 CERCLA decision documents and operations and maintenance and monitoring plans developed in accordance with the Federal Facility Agreement and Consent Order (FFNCO) (DOE-ID 199la) and identification of applicable requirements. This report includes a list of these requirements and the associated compliance documentation.

- Tracking of decisions made on each WAG 2 site through the FFA/CO-required documents (DOE-ID 1991a). This report includes the final decision on each site and the associated end-state document.

- Identification of the sites investigated in each type of document (initial assessment, Track 1s, Track 2s, and remedial investigatiodfeasibility studies [RI/FSs]) and the sites addressed in each of the three Records of Decision (RODs). This report includes a summary flow diagram of the sites included in each type of investigative document and ROD.

- Closing out of all subcontracts, charge numbers and gathered total costs. The total costs projected through close-out of WAG 2 are $21.0 million.

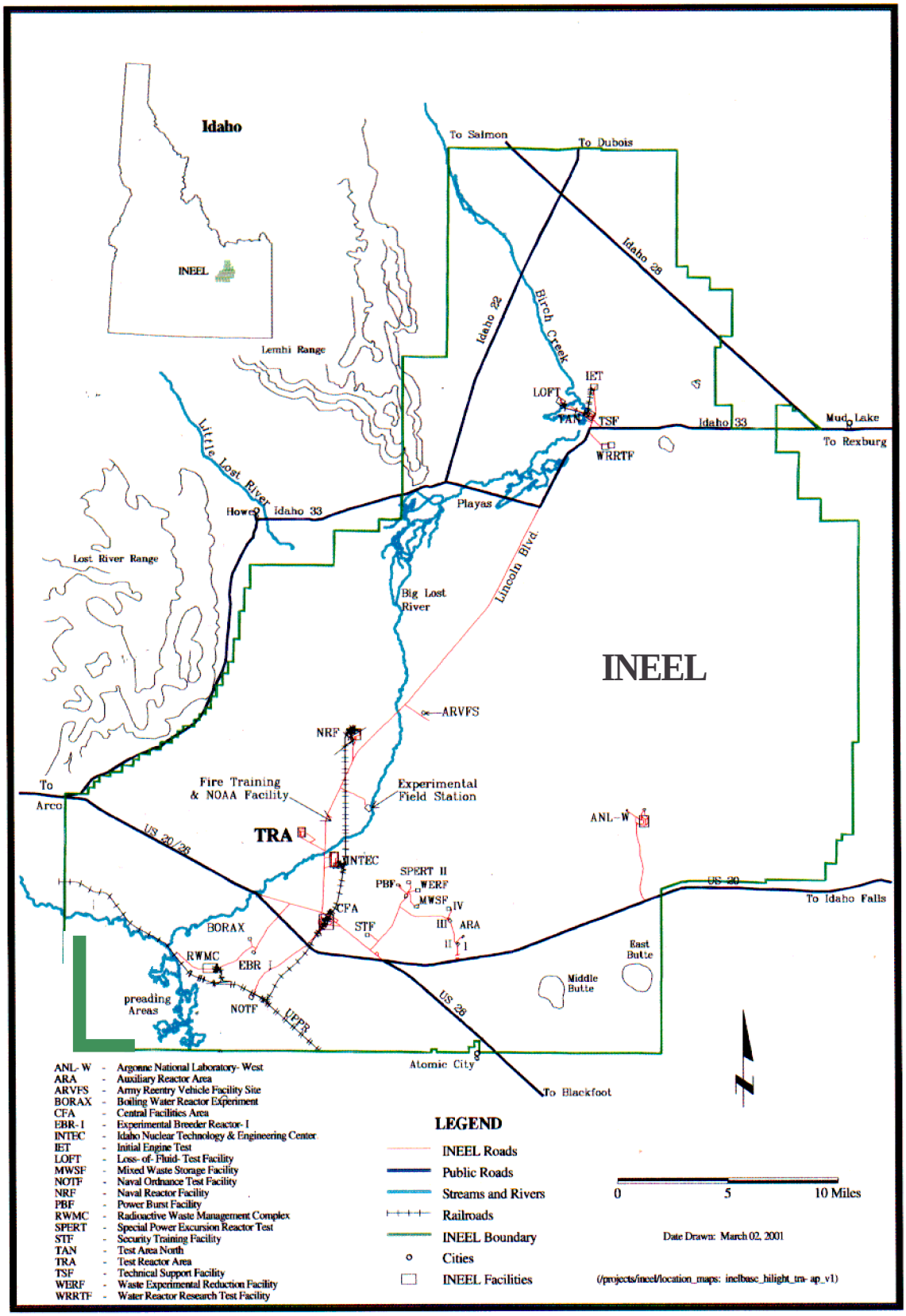


Figure 1. **Location of Test Reactor Area at** the Idaho **National Engineering** and **Environmental Laboratory.**

2. REQUIREMENTS

The review and evaluation process included the compilation of all documents prepared in support of the WAG 2 sites. These documents include Track 1 and Track 2 Evaluations, Risk Assessments, RI/FSs, Remedial Design/Remedial Action Work Plans, Remedial Action Reports, RODs, Explanations of Significant Differences (ESDs), Groundwater Monitoring Plans, and Operations and Maintenance Plans. The results of the review of these documents and the requirements included therein related to the WAG 2 sites are presented in Table 1.

An extensive search of all documents contained in the Environmental Restoration project files in the Electronic Document Management System (EDMS) was completed to identify all sites under WAG 2. Subsequently, a progressive search of available documents pertaining to each site was completed, and those documents were reviewed to ensure that each site had reached its end state. The results of the review relating to site-specific requirements and end-state determinations are presented in Table 2.

A site documentation flow diagram, which identifies the various types of documents prepared to evaluate the sites included in WAG 2, is presented in Figure 2. This diagram shows the progression of evaluations performed on each site, the documents prepared, and in which document the end-state determination was made.

Table 1. Reauirements compliance matrix.

Requirements Document	Requirement/Commitment	Requirement/Commitment Document	Status
Declarationfor the Warm Waste Pond at the Test Reactor Area at the Idaho National Engineering Laboratory, Declaration of the Record of Decision (DOE-ID 1991b) (OU 2-10 ROD)	Perform a pilot-scale treatability study to determine applicability of the selected treatment technology.	*Results of the Pilot-Scale Treatability Studyfor the Test Reactor Area Warm Waste Pond, Volume I: Main Report* (Soelberg et al. 1993a) and *Results of the Pilot-Scale Treatability Studyfor the Test Reactor Area Warm Waste Pond, Volume II: Appendices* (Soelberg et al. 1993b)	Completed
	Perform physical separation and chemical extraction for contaminant recovery.	Based upon the results of the Pilot Scale Treatability Study (Soelberg et al. 1993a, 1993b), the selected remedy from the OU 2-10 ROD (DOE-ID 1991b) could not be implemented.	Completed
Explanation of Significant Differencesfor the Warm Waste Pond Sediments Record of Decision at the Test Reactor Area at the Idaho National Engineering and Environmental Laboratory (DOE-ID 1993)	Implement contingency remedy of excavation of contaminated soils from Warm Waste Pond Cell 1964 and place in Warm Waste Pond Cell 1952, followed by installation of a soil cover on Cell 1964.	Contingency Remedy was completed at Warm Waste Pond Cell 1964 under an interim action. "Draft Remedial Action Report, Test Reactor Area Warm Waste Pond Interim Action, Operable Unit 2-10' (MK-Ferguson 1994).	Completed
Record of Decision, Test Reactor Area Perched Water System, Operable Unit 2-12, Idaho National Engineering and Environmental Laboratory (DOE-ID 1992)	Prepare and submit a groundwater monitoring plan within 45 days of signing the ROD.	*Post Record of Decision Monitoring Planfor the Test Reactor Area Perched Water System Operable Unit 2-12* (Dames and Moore 1993). This plan called for the sampling of six perched water system wells and three Snake River Plain Aquifer wells.	Completed
	Conduct a 3-year statutory review of the deep-perched water system.	EPA Region 10 letter to DOE-ID, "Three-YearReview, Idaho National Engineering Laboratory Test Reactor Area Perched Water System Operable Unit 2-12" (Poeten 1996)	Completed
	Evaluate risk from the perspective of TRA as a whole in the WAG 2 Comprehensive *RIES.*	*Comprehensive Remedial Investigation/Feasibility Studyfor the Test Reactor Area Operable Unit 2-13 at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 1997a)	Completed
	Evaluate risk associated with the Cold Waste Pond in the WAG 2 Comprehensive *RIES.*	*Comprehensive Remedial Investigation/Feasibility Studyfor the Test Reactor Area Operable Unit 2-13 at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 1997a)	Completed

Table 1. (continued).

Requirements Document	Requirement/Commitment	Requirement/Commitment Document	Status
	Conduct a 5-year statutory review of the Warm Waste Pond interim action.	EPA Region 10 letter to DOE-ID, "Five-Year Review, Idaho National Engineering and Environmental Laboratory (INEEL) Test Reactor Area (TRA) Warm Waste Pond OU 2-10" (Poeten 1998)	ompleted
	Prepare and submit a technical memorandum that describes the results of the groundwater monitoring.	*Technical Memorandum, Post Record of Decision Monitoring for the Test Reactor Area Perched Water System Operable Unit 2-12* (Jessmore 1994)	ompleted
Post Record of Decision Monitoring Plan for the Test Reactor Area Perched Water System Operable Unit 2-12 (Dames and Moore 1993)	Prepare an annual technical memorandum describing the results of the groundwater monitoring effort. Provide documentation to the EPA and IDEQ within 30 working days of receipt of validated analytical data	*Technical Memorandum, Post Record of Decision Monitoring for the Test Reactor Area Perched Water System Operable Unit 2-12* (Jessmore 1994)	ompleted
		Post-Record of Decision Monitoring for the Test Reactor Area Perched Water System Operable Unit 2-12 Second Annual Technical Memorandum (Arnett, Meachum, and Jessmore 1995)	ompleted
	Conduct a review and evaluation of the groundwater monitoring program. Submit results to the EPA and IDEQ following 3-years of monitoring.	*Post-Record of Decision Monitoring for the Test Reactor Area Perched Water System Operable Unit 2-12 Third Annual Technical Memorandum (Arnett, Meachum, and Jessmore 1996)*	ompleted
Final Record of Decision, Test Reactor Area, Operable Unit 2-13, Idaho National Engineering and Environmental Laboratory (DOE-ID 1997b)	For sites where contaminants were left in place (containment and limited action) in excess of health-based levels, conduct statutory 5-year reviews.	*"First Five-Year Review Report for the Test Reactor Area, Operable Unit 2-13, at the Idaho National Engineering and Environmental Laboratory"* (DOE-ID 2003a)	ngoing
	For sites where contaminants were left in place (containment and limited action) in excess of health-based levels, maintain institutional controls as indicated.	*Institutional Controls Annual Monitoring Report for the Test Reactor Area, Operable Unit 2-13* (Seeley 2001)	ompleted
		FY-2001 Institutional Control Inspection Report for the Test Reactor Area, Operable Unit 2-13 (INEEL 2001)	ompleted
		FY-2002 Annual Institutional Controls Inspection Report for the Test Reactor Area, Operable Units 2-13 and 2-14 (INEEL 2002)	ompleted
	Develop a groundwater monitoring plan in accordance with the OU 2-13 Remedial Design/Remedial Action Scope of Work, which integrates the monitoring needs of both OU 2-12 and OU 2-13.	*Groundwater Monitoring Plan for the Test Reactor Area Operable Unit 2-13* (DOE-ID 2003b)	ompleted

Table 1. (continued).

Requirements Document	Requirement/Commitment	Requirement/Commitment Document	Status
xplanation of Significant ifferences to the Record oj ecision for Test Reactor rea Operable Unit 2-13 IOE-ID 2000a)	Implement identified institutional controls at seven sites (where contamination remains in place) that were identified as "No Further Action" sites in the OU 2-13 ROD (DOE-ID 1997b). Those sites included the PCB spills at TRA-619, TRA-626, and TRA-653; TRA-34; TRA-04; jeep-perched water system/Snake River Plain Aquifer; and the Hot Tree Site.	*Institutional Controls Annual Monitoring Report for the Test Reactor Area, Operable Unit 2-13* (Seeley 2001) *FY-2001 Institutional Control Inspection Report for the Test Reactor Area, Operable Unit 2-13* (INEEL 2001) *FY-2002 Annual Institutional Controls Inspection Report for the Test Reactor Area, Operable Units 2-13 and 2-14* (INEEL 2002)	ompleted ompleted ompleted
roundwater Monitoring lan for the Test Reactor rea Operable Unit 2-13 IOE-ID 2003b)	Conduct groundwater sampling of identified jeep-perched water system and Snake River Plain Aquifer wells on semiannual, annual, and 5-year frequencies.	Groundwater sampling of the deep-perched water system wells was conducted in accordance with the requirements identified in the *Post Record of Decision Monitoring Plan for Test Reactor Area Perched Water System Operable Unit 2-12* (Dames and Moore 1993) from May 1993 until July 1998, when the *Groundwater Monitoring Plan for Test Reactor Area Operable Unit 2-13* (DOE-ID 2003b) was completed. With the completion of the OU 2-13 Groundwater Monitoring Plan, a total of seven perched water system wells and six Snake River Plain Aquifer wells are to be monitored.	ngoing
	Submit quality-assured data collected during groundwater monitoring activities in accordance with FFMCO requirements.	Quality-assured data for all semiannual and annual groundwater-sampling activities have been submitted in accordance with FFMCO requirements (DOE-ID 1991a). These limitation and validation reports can be accessed through EDMS, which is maintained by DOE-ID'Sprime contractor.	ngoing
)perations and laintenance Plan for the inal Selected Remedies anc nstitutional Controls at Tes eactor Area, Operable nit 2-13 (DOE-ID 2000b)	Inspect and maintain the native soil and engineered covers at the Warm Waste Pond, Chemical Waste Pond, and Sewage Leach Pond.	*Institutional Controls Annual Monitoring Report for the Test Reactor Area, Operable Unit 2-13* (Seeley 2001)	ompleted
	Inspect and maintain institutional controls as part of the remedies at the Warm Waste Pond, Chemical Waste Pond, Sewage Leach Pond and Soil Contamination Area, TRA-15, TRA-19 and Brass Cap Area.	*FY-2001 Institutional Control Inspection Report for the Test Reactor Area, Operable Unit 2-13* (INEEL 2001)	ompleted
	Inspect and maintain institutional controls to preserve the underlying assumptions in the RI/FS [DOE-ID 1997a) for the Cold Waste Pond; PCB spills at TRA-619, TRA-626, and TRA-653; Warm Waste Retention Basin; TRA-34; Hot Tree; and the deep-perched water system/Snake River Plain Aquifer.	*FY-2002 Annual Institutional Controls Inspection Report for the Test Reactor Area, Operable Units 2-13 and 2-14* (INEEL 2002) Note: Annual Institutional Controls Inspection Reports are required to be continued until determined to be unnecessary as a result of a 5-year review. These reports are discussed further in Section 5.1.2 of this report.	ompleted

Requirements Document	Requirement/Commitment	Requirement/Commitment Document	Status

Table 2. Site determination matrix.

OU	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
None	TRA-10	TRA MTR Construction Excavation Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-23	TRA ETR Excavation Site Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-24	TRA Guardhouse Construction Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-25	TRA Sewer Plant Settling Pond Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-26	TRA Rubble Site by U.S.G.S. Observation Well	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-27	TRA North Storage Area Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

OU	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
None	TRA-28	TRA North (Landfill) Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-29	TRA ATR Construction Rubble	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-32	TRA West Road Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
None	TRA-33	TRA West Staging Area/Drainage Ditch Rubble Site	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Initial Assessment (DOE-ID, EPA, and IDHW 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-01	TRA-02	TRA Paint Shop Ditch at TRA-606	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 1 Investigation (McCormick 1991), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-02	TRA-14	TRA Inactive Gasoline Tank at TRA-605	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 1 (DOE-ID, EPA, and IDHW 1992), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

OU	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-02	TRA-17	TRA Inactive Gasoline Tank at TRA-616	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 1 (DOE-ID, EPA, and IDHW 1993a), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-02	TRA-18	TRA Inactive Gasoline Tank at TRA-619	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 1 (DOE-ID, EPA, and IDHW 1993b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-02	TRA-21	TRA Inactive Tank, North Side of MTR-643	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 1 (DOE-ID, EPA, and IDHW 1993c), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-02	TRA-22	TRA Inactive Diesel Fuel Tank at ETR-648	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 1 (DOE-ID, EPA, and IDHW 1993d), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-03	None	TRA-614 Oil Storage North	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-03	TRA-01	TRA Acid Spill Disposal Pit	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
l-03	TRA-11	TRA French Drain at TRA-645	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-03	TRA-12	TRA Fuel Oil Tank Spill at TRA-727B	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-03	TRA-20	TRA Brine Tank (TRA-731A) at TRA-631	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-03	TRA-40	TRA Tunnel French Drain at TRA-731	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995b), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-04	None	TRA PCB Spill at TRA-619	X	X						ESD to OU 2-13 ROD (DOE-ID 2000a)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and based upon the risk evaluated in the OU 2-13 RI/FS (DOE-ID 1997a), a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b). ICs were mandated in the ESD to OU 2-13 ROD (DOE-ID 2000a).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-04	None	TRA PCB Spill at TRA-626	X	X						ESD to OU 2-13 ROD (DOE-ID 2000a)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and based upon the risk evaluated in the OU 2-13 RIES (DOE-ID 1997a), a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b). ICs were mandated in the ESD to OU 2-13 ROD (DOE-ID 2000a).
2-04	None	TRA-627 No. 5 Oil Spill	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-04	None	TRA PCB Spill at TRA-653	X	X						ESD to OU 2-13 ROD (DOE-ID 2000a)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and based upon the risk evaluated in the OU 2-13 RIES (DOE-ID 1997a), a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b). ICs were mandated in the ESD to OU 2-13 ROD (DOE-ID 2000a).
2-04	None	TRA-670 Petroleum Product Spill	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
l-04	Vone	TRA PW-13 Diesel Fuel Contamination	X							OU 2-13 ROD (DOE-ID1997b)	The NFA recommendationwas made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and a No Action Determinationwas confirmed in the OU 2-13 ROD (DOE-ID 1997b). Well is included in OU 2-13 Groundwater Monitoring Plan (DOE-ID 2003b).
l-04	ITRA-09	TRA Spills at TRA Loading Dock Area at TRA-722	X							OU 2-13 ROD (DOE-ID1997b)	The NFA recommendationwas made in the Track 2 (DOE-ID, EPA, and IDHW 1995f), and a No Action Determinationwas confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-04	ITRA-34	TRA North Storage Area	X	X						ESD to OU 2-13 ROD (DOE-ID2000a)	Non-time-criticalremoval action was completed in 199511996 (Nelson 1995), and based upon the risk evaluated in the OU 2-13 RI/FS (DOE-ID 1997a), a No Action Determinationwas confirmed in the OU 2-13 ROD (DOE-ID 1997b). ICs were mandated in the ESD to OU 2-13 ROD (DOE-ID 2000a).
l-05	Vone	TRA-6031605 Tank	X							OU 2-13 ROD (DOE-ID1997b)	The NFA recommendationwas made in the Track 2 (DOE-ID, EPA, and IDHW 1995e), and a No Action Determinationwas confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
l-05	TRA-15	TRA Hot Waste Tanks #s 2, 3 & 4 at TRA-613		X						DU 2-13 ROD DOE-ID 1997b)	The NFA recommendation for releases from tanks was made in the Track 2 (DOE-ID, EPA, and IDHW 1995e). Further risk from surrounding soils was evaluated in the OU 2-13 RIES (DOE-ID 1997a). Limited Action Determination and ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
l-05	TRA-16	TRA Inactive Radioactive Contaminated Tank at TRA-614	X							DU 2-13 ROD DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995e). Risk was evaluated in the OU 2-13 RIES (DOE-ID 1997a) and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-05	TRA-19	TRA Radioactive Tank #s 1 & 4, replaced by Tank #s 1, 2, 3, & 4		X	X					DU 2-13 ROD DOE-ID 1997b)	The NFA recommendation for releases from the tanks was made in the Track 2 (DOE-ID, EPA, and IDHW 1995e). Further risk was evaluated in the OU 2-13 RIES (DOE-ID 1997a). Limited Action Determination with Contingency Excavation with Disposal Option and ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
l-06	TRA-30	TRA Beta Building Rubble Site	X							DU 2-13 ROD DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995c), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-06	TRA-31	TRA West Rubble Site	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995c), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-06	TRA-35	TRA Rubble Site East of West Road near Beta Building Rubble Pile	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995c), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-07	None	TRA-653 Chromium-Contaminated Soil	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995d), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-07	TRA-36	TRA ETR Cooling Tower Basin at TRA-751	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995d), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-07	TRA-38	TRA ATR Cooling Tower at TRA-771	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995d), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-07	TRA-39	TRA MTR Cooling Tower North of TRA-607	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995d), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
l-08	TRA-37	TRA MTR Canal in Basement of TRA-603	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995a), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-09	TRA-07	TRA Sewage Treatment Plant (TRA-624) and Sludge Pit (TRA-07)	X							OU 2-13 ROD (DOE-ID 1997b)	This site was evaluated under the Baseline Risk Assessment, which was incorporated into the OU 2-13 RIES (DOE-ID 1997a), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
l-09	TRA-08	TRA Cold Waste Disposal Pond at TRA-702		X		X			X	RA Report (DOE-ID 2000c)	Risk was evaluated in the OU 2-13 RIES (DOE-ID 1997a). The selected remedy (Excavation/Disposal) was implemented under the OU 2-13 RD/RA Work Plan (DOE-ID 1998). ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
l-09	TRA-13*	TRA Final Sewage Leach Ponds (2) at TRA-732 including Sewage Leach Pond Berm and Soil Contamination Area		X		X			X	RA Report (DOE-ID 2000c)	Risk was evaluated in the OU 2-13 RIES (DOE-ID 1997a). The selected remedy (Containment with Native Soil Cover and ICs) was implemented under the OU 2-13 RD/RA Work Plan (DOE-ID 1998). ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-10	TRA-03B	TRA Warm Waste Pond Sediments		X		X		X	X	RA Report (DOE-ID 2000c)	The Initial Assessment Remedy in the OU 2-10 ROD was not implemented (Soelberg et al. 1993a, 1993b). The ESD to the ROD selected excavation of Cell 1964 and placement in Cell 1952 (DOE-ID 1993). The ESD selected remedy was completed under an Interim Action. ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
2-11	TRA-03A	TRA Warm Waste Leach Pond at TRA-758	X							OU 2-13 ROD (DOE-ID 1997b)	The selected remedy (Containment with Engineered Cover and ICs) was implemented under the OU 2-13 RD/RA Work Plan (DOE-ID 1998).
2-11	TRA-04	TRA Warm Waste Retention Basin at TRA-712	X	X						OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995g). A No Action Determination was confirmed and ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
2-11	TRA-05	TRA Waste Disposal Well, Sampling Pit TRA-764 and Sump TRA-703	X							OU 2-13 ROD (DOE-ID 1997b)	The NFA recommendation was made in the Track 2 (DOE-ID, EPA, and IDHW 1995g), and a No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-12	Vone	Perched Water RI/FS	X	X						OU 2-13 ROD (DOE-ID 1997b)	The NFA determination for groundwater monitoring was made in the OU 2-12 ROD (DOE-ID 1992). Monitoring was conducted according to the OU 2-13 Groundwater Monitoring Plan (DOE-ID 2003b). ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).

Table 2. (continued).

OU	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-13	TRA-06	TRA Chemical Waste Pond at TRA-701		X		X			X	RA Report (DOE-ID 2000c)	The selected remedy (Containment with Native Soil Cover) was implemented under the OU 2-13 RD/RA Work Plan (DOE-ID 1998). ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
2-13	TRA-41	French Drain Site	X							OU 2-13 ROD (DOE-ID 1997b)	This site was evaluated under the Baseline Risk Assessment, which was incorporated into the OU 2-13 RIES (DOE-ID 1997a). A No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-13	TRA-42	Diesel Unloading Pit	X							OU 2-13 ROD (DOE-ID 1997b)	This site was evaluated under the Baseline Risk Assessment, which was incorporated into the OU 2-13 RIES (DOE-ID 1997a). A No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
2-13	None	Brass Cap Area		X	X					OU 2-13 ROD (DOE-ID 1997b)	Risk was evaluated in the OU 2-13 RIES (DOE-ID 1997a). Limited Action Determination with Contingency Excavation and Disposal Option, and ICs were mandated in the OU 2-13 ROD (DOE-ID 1997b).
2-13	None	Hot Tree Site	X	X						ESD to OU 2-13 ROD (DOE-ID 2000a)	A No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b). ICs were mandated in the ESD to the OU 2-13 ROD (DOE-ID 2000a).

Table 2. (continued).

ou	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-13	None	ETR Stack Area	X							OU 2-13 ROD (DOE-ID 1997b)	This site was evaluated under the Baseline Risk Assessment, which was incorporated into the OU 2-13 RI/FS (DOE-ID 1997a). A No Action Determination was confirmed in the OU 2-13 ROD (DOE-ID 1997b).
New Sites Identified Post-ROD											
2-14 / 10-08	TRA-56	Abandoned Acid Line from TRA-631 to TRA-645		X	X						The Track 1 Decision Statement recommended that this site should remain under industrial control and should be evaluated in the ou 10-08 RI/FS**.
2-14 / 10-08	TRA-57	Abandoned Buried Diesel Fuel Line from TRA-727 and TRA-775 to ETR			X						The Track 1 Decision Statement recommended that this site should remain under industrial control and should be evaluated under the ou 10-08 RI/FS**.
2-14 / 10-08	TRA-58	Abandoned Buried Fuel Oil Lines (four) from TRA-727 to TRA-609			X						The Track 1 Decision Statement recommends No Further Action.
2-14 / 10-08	TRA-59	Abandoned Buried Acid Line from TRA-631 to TRA-671		X	X						Site will be evaluated under the OU 10-08 RI/FS**. The Track 1 Decision Statement recommended that this site should remain under industrial control.
2-14 / 10-08	TRA-60	Fenced Area North of TRA-608			X						The Track 1 Decision Statement recommended that a Track 2 Investigation be conducted.
2-14 / 10-08	TRA-61	Gamma Building TRA-641 Warm Waste Line to Catch Tank Vault TRA-730	X								Site was determined to not meet the criteria for acceptance under the FFA/CO (DOE-ID 1991a).

Table 2. (continued).

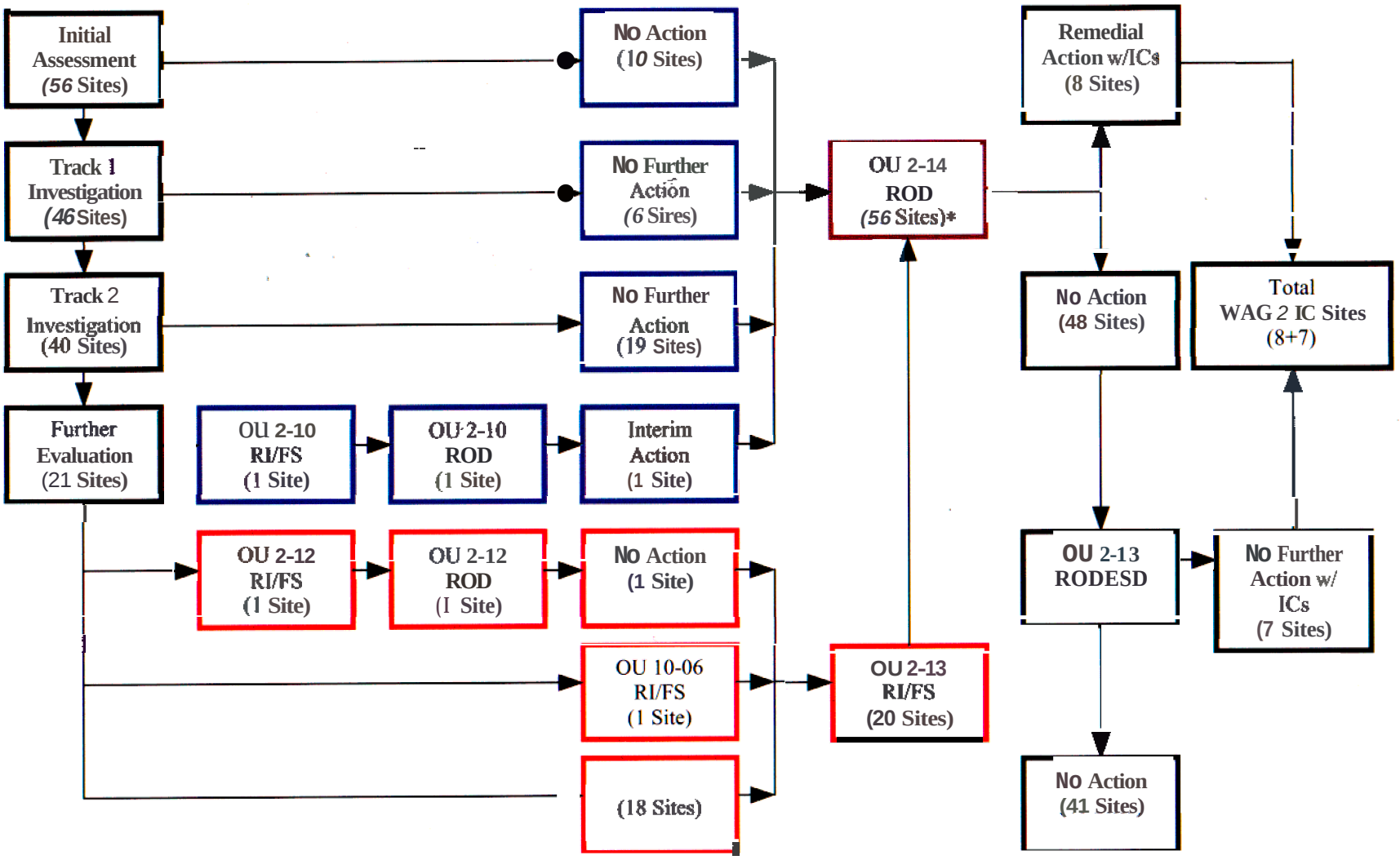
OU	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
2-14 / 10-08	TRA-62	Abandoned Discharge Lines at TRA-608 Area to Chemical Leach Pond TRA-701			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
2-14 / 10-08	TRA-63	Warm Waste Line at TRA-605			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-64	Shallow Injection Well-Floor Drain in TRA-669			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-65	Shallow Injection Well-Floor Drain in TRA-673			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-66	Shallow Injection Well-Floor Drain in TRA-674			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-67	Shallow Injection Well in Northeast Corner of TRA-614			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-68	Shallow Injection Well in Northeast Corner of TRA-616			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-69	Shallow Injection Well on South Side of TRA-667			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-70	Shallow Injection Well on South Side of TRA-727A			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.

Table 2. (continued).

OU	Initial Site No.	Site Description	No Action	ICs	Future Action Sites	Remedial Action ICs	Remedial Action No ICs	Interim Action	Met ROD Reauirements	End State Document	Comments
10-08	TRA-71	Shallow Injection Well on South Side of TRA-727B			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.
10-08	TRA-72	Shallow Injection Well on North Side of TRA-627W			X						The New Site Identification Form recommended acceptance under the FFNCO, and evaluation to occur in the OU 10-08 RI/FS**.

* Site Code TRA-13 (TRA Final Sewage Leach Ponds [2] at TRA-732 including Sewage Leach Pond Berm and Soil Contamination Area) is listed as two separate sites in the ESD to the OU 2-13 ROD (DOE-ID 2000a). This is the reason 14 IC sites are listed above, while 15 IC sites are identified in the ESD to the OU 2-13 ROD (DOE-ID 2000a).
** The OU 10-08 RI/FS is scheduled to begin in 2008.

ATR = Advanced Test Reactor
DOE-ID = U.S. Department of Energy Idaho Operations Office
EPA = U.S. Environmental Protection Agency
ESD = Explanation of Significant Differences
ETR = Engineering Test Reactor
IC = institutional control
IDHW = Idaho Department of Health and Welfare
MTR = Materials Test Reactor
NFA = no further action
OU = operable unit
PCB = polychlorinated biphenyl
RI/FS = remedial investigatiodfeasibility study
ROD = Record of Decision
TRA = Test Reactor Area
USGS = United States Geological Survey



* The total number of sites shown above differs from the total indicated in the OU 2-13 Record of Decision because Site TRA-03 (Warm Waste Pond) was split into Site TRA-03A and TRA-03B, and then evaluated and addressed separately.
** The 10-06 RI/FS, which was expected to evaluate one site from WAG 2, was not performed, and therefore the site was included in OU 2-13 RI/FS.

Figure 2. Site documentation flow diagram.

3. CLOSE-OUT EVALUATION

3.1 Achievement of Requirements

The three RODs that were prepared to evaluate and address the various WAG 2 sites are shown in Figure 2, and included in Tables 1 and 2, indicating where the achievement of requirements is documented. The first *ROD—Declaration for the Warm Waste Pond at the Test Reactor Area at the Idaho National Engineering Laboratory, Declaration of the Record of Decision (DOE-ID* 199lb), which is commonly referred to as the OU 2-10 ROD—addressed one site, the TRA Warm Waste Pond. The second *ROD—Record of Decision, Test Reactor Area Perched Water System, Operable Unit 2-12 Idaho National Engineering Laboratory (DOE-ID* 1992)—addressed one site, the Perched Water System underlying the TRA facility. The third *ROD—Final Record of Decision, Test Reactor Area, Operable Unit 2-13, Idaho National Engineering and Environmental Laboratory (DOE-ID* 1997b)—which is commonly referred to as the OU 2-13 *ROD* or Comprehensive *ROD,* consolidated all previous information, data, evaluations, recommendations, and actions taken, regarding all sites identified as WAG 2.

3.2 Perched Water

The perched water system underlying the TRA was evaluated under the *Remedial Investigation Report for the Test Reactor Area Perched Water System (Operable Unit 2-12)* (Dames and Moore 1992). The determination recommendation of "No Further Action" was validated in both the OU 2-12 and OU 2-13 RODs *(DOE-ID* 1992, 1997b). This determination was based on assumptions related to the duration of TRA facility operations, and it contained multiple components. The components and assumptions related to this determination included the following:

- Groundwater monitoring would be conducted to verify that contaminant concentration trends follow those predicted by a groundwater computer model
- Test Reactor Area operations would continue through 2007
- The Warm Waste Pond would be replaced with a new, lined pond in 1993 (completed in 1993).

The requirement to develop and implement a groundwater monitoring plan for the perched water system was met with the preparation of the *Post Record of Decision Monitoring Plan for the Test Reactor Area Perched Water System Operable Unit 2-12* (Dames and Moore 1993). Because of ongoing operations at TRA, the perched water system underlying the facility will continue to receive water attributed to discharges to the Cold Waste Pond. Monitoring of the perched water system will continue to be performed in accordance with the *Groundwater Monitoring Plan for the Test Reactor Area Operable Unit 2-13 (DOE-ID* 2003b).

3.3 Achievement of Milestones

The WAG 2 enforceable milestones and their associated completion dates are presented in Table 3. All identified FFA/CO-enforceable milestones related to WAG 2 have been completed.

Table 3. Waste Area Group 2 enforceable milestones.

INEEL FFA/CO Milestones	Enforceable Date	Completed Date
OU 2-12 Perched Water Draft RI/FS SOW submitted for review	04/30/91	03/01/91
OU 2-10 Warm Waste Pond Draft ROD for an Interim Remedial Action submitted for review	11/30/91	11/25/91
OU 2-12 Perched Water Draft RI/FS submitted for review	11/30/92	03/24/92
OU 2-12 Perched Water Draft Monitoring Plan submitted for review	01/29/93	02/01/93
OU 2-10 Warm Waste Pond Draft Treatability Study submitted for review	01/31/93	01/19/93
OU 2-10 Warm Waste Pond Draft RD/Implementing RA Work Plan submitted for review	06/30/93	06/11/93
OU 2-12 Perched Water Draft RI/FS ROD submitted for review	09/30/93	10/14/92
OU 2-10 Warm Waste Pond Draft RA Report submitted for review	02/28/94	02/15/94
OU 2-13 Draft Comprehensive RI/FS SOW submitted for review	07/31/96	07/25/94
OU 2-13 Draft Comprehensive RI/FS Work Plan submitted for review	12/31/96	12/23/94
OU 2-13 Draft RD/RA SOW submitted for review	01/31/98	01/07/98
OU 2-13 Draft RD/RA Work Plan submitted for review	07/31/98	06/16/98
OU 2-13 Draft Comprehensive RI/FS submitted for review	08/31/98	03/23/96
OU 2-13 Subcontractor(s) mobilize to TRA	03/31/99	03/08/99
OU 2-13 Draft Comprehensive RI/FS ROD submitted for review	06/30/99	06/25/97
OU 2-13 Draft RA Report submitted for review	03/10/00	02/24/00

FFA/CO = Federal Facility Agreement and Consent Order
INEEL = Idaho National Engineering and Environmental Laboratory
OU = operable unit
RA = remedial action
RD = remedial design
RI/FS = remedial investigatiodfeasibility study
ROD = Record of Decision
SOW = Scope of Work
TRA = Test Reactor Area

3.4 Closure of Compliance Issues

No outstanding compliance issues regarding Resource Conservation and Recovery Act (RCRA) or CERCLA regulations were identified during this review. All work activities have been completed in accordance with the applicable or relevant and appropriate requirements identified in the OU 2-13 ROD (DOE-ID 1997b).

Regulatory compliance issues related to the INEEL are entered, maintained, and tracked to resolution through a database (INEEL Compliance Disclosure Log), which is maintained by the Environmental Affairs Organization of the **U.S.** Department of Energy's prime contractor. A review of the Environmental Affairs Disclosure Log was completed and no outstanding compliance issues were identified for WAG 2 sites. Any requests for access of the information contained in the INEEL

Compliance Disclosure Log should be directed to the U.S. Department of Energy Idaho Operations Office (DOE-ID).

In February 2002, representatives of the U.S. Environmental Protection Agency (EPA), Region 10; the Idaho Department of Environmental Quality (IDEQ); and the National Enforcement Investigation Center completed a CERCLA regulatory compliance inspection at the INEEL. A review of the inspection results regarding WAG 2 sites revealed no compliance issues. A copy of the inspection results may be obtained by accessing the EDMS.

3.5 Retention of Records

In accordance with the requirements stated in the FFA/CO (DOE-ID 1991a), the U.S. Department of Energy has established and currently maintains a database for the compilation and retention of Sitewide data generated with respect to all sites either considered or accepted under the FFA/CO. These data are maintained and summarized in the Administrative Record, which is located at the INEEL Technical Library in Idaho Falls, Idaho. Upon request, copies of these electronically maintained data will be made available to the EPA, IDEQ, and members of the public.

As part of the project close-out activity, an extensive review of the Administrative Record and contractor-maintained EDMS was performed to ensure that all pertinent and relevant data and records have been included and are being maintained in accordance with the appropriate requirements. The results of this review revealed that all documents designated as either primary or secondary documents under the FFA/CO (DOE-ID 1991a), in which action determinations have been made, were included and may be accessed in either the Administrative Record or EDMS. The review also determined that non-primary/secondary documents for those sites requiring hrther evaluation are included and are being maintained in the Administrative Record/EDMS.

This activity also included completion verification of quality assurance/quality control documents regarding the submittal of vendor data for materials used during the completion of the required remedial actions at WAG 2 sites. These data submittals are included in the EDMS, which was established for the compilation, maintenance, and retention of records. These data can be accessed at the following address: http://zeus.inel.gov:8080/docs/ois/ois_index.html.

4. SUMMARY OF THE FIRST WASTE AREA GROUP 2 FIVE-YEAR REVIEW

The implemented remedies from the OU 2-13 ROD (DOE-ID 1997b) continue to be protective of human health and the environment based on the data and analyses presented in the First Five-Year Review (DOE-ID 2003a). The EPA, with consultation from the IDEQ, retains final authority over whether the 5-year review adequately addresses the protectiveness of remedies. Potential short-term threats are being addressed through institutional controls. Long-term protectiveness of human health and the environment under the OU 2-13 ROD was determined based upon concentrations predicted in the aquifer (not in perched water). Trends for contaminants of concern measured in the aquifer during the first 5-year review period are currently below the maximum contaminant levels (MCLs), or are projected to be below the MCLs in 2012. Thus, the chromium concentrations in all wells will be below the MCL 4 years in advance of the pre-Record of Decision model that predicted the concentration of chromium to reach the MCL by 2016. Issues identified in the 5-year review that are related to perched water are not expected to affect the protectiveness of the selected remedies. Ongoing discussions, which include the DOE-ID, EPA, and IDEQ (hereinafter collectively referred to as the Agencies), will define activities to fully evaluate the perched water conditions and potential long-term impacts on the aquifer. Long-term protectiveness will be satisfied under the selected remedy when groundwater cleanup goals are achieved, which is estimated to occur in the year 2012.

The next 5-year review for the Test Reactor Area, Operable Unit 2-13 is required by December 21,2007.

4.1 Issues Identified in the Five-Year Review

Because of ongoing operations at TRA, the perched water system underlying the facility will continue to receive water attributed to discharges to the Cold Waste Pond. Monitoring of the perched water system will continue to be performed by the Idaho Completion Project in accordance with the *Groundwater Monitoring Plan for the Test Reactor Area Operable Unit 2-13* (DOE-ID 2003b).

The following issues were identified during the 5-year review performed for WAG 2:

1. Increasing activities of Sr-90 in Wells PW-12, USGS-054, USGS-055, and USGS-070, and a recent increase of Co-60 in Well PW-12 remain unexplained.

2. The original assumption at the time of the OU 2-13 ROD (DOE-ID 1997b) was that the TRA facility would be decommissioned and decontaminated in 2007. Under a recent decision by DOE, TRA will remain active for at least another 20 years. Continued discharge to the Cold Waste Pond from TRA operations will cause the perched water systems to persist, while the effects on contaminant transport to the aquifer have not been evaluated.

3. Based on the analyses performed in the 5-year review, it might be appropriate to revisit the list of analytes monitored in groundwater and reduce the number of analytes to only include chromium, tritium, Sr-90, and CO-60, or to reduce the frequency of the monitoring.

4. Large fluctuations in water chemistry in perched water have been observed since the Record of Decision signature and are currently not understood.

5. The PW-13 perched water well continues to test positive for diesel.

6. The establishment and maintenance of desirable vegetation on native soil covers for the sewage leach pond and chemical waste pond are of concern.

5. TRANSITION OF WASTE AREA GROUP 2 RESPONSIBILITIES

The review by the Idaho Completion Project of all CERCLA requirements for WAG 2 has been completed and all requirements have been met. All WAG 2 enforceable milestones have been completed and no outstanding RCRA or CERCLA compliance issues affecting WAG 2 were identified during the completion of this project close-out report. The first 5-year review for WAG 2 indicates that the selected remedies are protective of human health and the environment; however, perched water issues require hrther investigation. The resolution of these issues may identify corrective actions that involve either individual or combined responses from the Idaho Completion Project and the Nuclear Energy organization.

If the identified cause of an above stated issue is attributed to an inactive site, the Idaho Completion Project will fund and perform any required corrective action. If the identified cause of the problem is attributed to current TRA operations, it will require the Nuclear Energy organization to fund any required corrective action, and/or implement operational changes to ensure compliance with the applicable environmental regulations. The division of WAG 2 responsibilities is shown in Table 4.

5.1 Continuing Idaho Completion Project Activities

With the submission of the *Remedial Action Report for the Test Reactor Area Operable Unit 2-13* (DOE-ID 2000c), WAG 2 entered into a monitoring and surveillance mode of operation. Remedial actions have been completed at WAG 2; however, monitoring, maintenance, inspection, and reporting requirements will continue until determined to no longer be necessary during a 5-year review with concurrence of the Agencies.

Continuing Idaho Completion Project activities at TRA include the following:

- Long-term monitoring, surveillance, and reporting associated with groundwater and institutional control sites
- Five-year reviews
- Contingency actions for hture excavation and disposal at TRA-19 and the Brass Cap Area
- Further evaluation of sites identified post-OU 2-13 ROD (sites identified in Table 2)
- Maintenance of vegetation on sewage leach pond cover and chemical waste pond cover
- Responsibility for all sites currently listed in the FFA/CO (DOE-ID 1991a), including new sites added from Table 2 of this document
- Complete characterization of warm waste line release
- Complete initial characterization of diesel in PW-13
- Complete initial characterization of cobalt-60 release.

The activities detailed in the following subsections will remain the responsibility of the Idaho Completion Project.

5.1.1 Groundwater Monitoring

In December 1992, the OU 2-12 *ROD—Record of Decision, Test Reactor Area Perched Water System, Operable Unit 2-12, Idaho National Engineering Laboratory* (DOE-ID 1992)—was issued to address the perched water system that lies beneath the TRA at the INEEL. This ROD determined that no remedial action was necessary to ensure protection of human health and the environment. Because the

Table 4. Division of Waste Area Group 2 responsibilities.

Idaho Completion Project	Nuclear Energy Organization
• Long-term monitoring, surveillance, and reporting associated with groundwater and institutional control sites • Five-year reviews • Contingency actions for hture excavation and disposal at TRA-19 and the Brass Cap Area • Further evaluation of sites identified post-OU 2-13 ROD (sites identified in Table 2) • Maintenance of vegetation on sewage leach pond cover and chemical waste pond cover • Responsibility for all sites currently listed in the FFA/CO (DOE-ID 1991a), including new sites added from Table 2 of this document • Complete characterization of warm waste line release • Complete initial characterization of diesel in PW-13 • Complete initial characterization of cobalt-60 release.	• Responsibility for any newly identified site discovered after October 1, 2003, whether resulting from an active site or an inactive source • Identification of any new contaminant sources or new releases from active sites and the corrective actions to mitigate them • Evaluation of 20 or more additional years of continuing operations at TRA and the impact on the percolation pond and contaminant transport • Corrective action (if required) if PW-13 diesel is attributed to a new active source • Corrective action (if required) if cobalt-60 release is attributed to an active source.

determination was based on the results of predictive computer modeling, monitoring of the perched water system and Snake River Plain Aquifer was required. The OU 2-12 ROD (DOE-ID 1992) stated that a groundwater monitoring plan should be prepared and submitted within 45 days of signing the ROD. This requirement was met with the submittal of the draft *Post Record of Decision Monitoring Plan for the Test Reactor Area Perched Water System Operable Unit 2-12* on February 1, 1993, which was finalized in August 1993 (Dames and Moore 1993). This plan identified the wells to be monitored, constituents and parameters to be monitored, frequency of monitoring, reporting requirements, and the criteria for hture decisions.

The OU 2-13 ROD (DOE-ID 1997b), which was issued in December 1997, incorporated the results from the *Comprehensive Remedial Investigation/Feasibility Study for the Test Reactor Area Operable Unit 2-13 at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 1997a), and refined the objectives of the groundwater-monitoring program. Groundwater monitoring was to continue in an effort to verify that contaminant concentration trends would continue to decrease to acceptable levels within the next 20 years, as predicted by the groundwater model. The OU 2-13 ROD indicated that groundwater monitoring would be performed in accordance with the OU 2-12 ROD (DOE-ID 1992), however no reporting requirements regarding content or frequency were identified. The *Groundwater Monitoring Plan for the Test Reactor Area Operable Unit 2-13* (DOE-ID 2003b) was published in July 1998 and indicated only that quality assured data collected during groundwater monitoring be submitted to the Agencies no later than 120 days from the time of collection.

The Idaho Completion Project will retain the responsibility of monitoring the groundwater for contaminants identified in the OU 2-13 ROD (DOE-ID 1997b), and for taking corrective actions if required.

As documented in conference call meeting minutes dated October 29,2002, representatives of DOE-ID, EPA, IDEQ and Bechtel BWXT Idaho, LLC (BBWI) reached an agreement to combine the groundwater monitoring information with the submission of the annual institutional controls inspection report, which is described in the following section.

5.1.2 Operation and Maintenance including Institutional Controls

As documented in the September 19,2000 WAG 2 conference call meeting minutes, Agency representatives reached an agreement that an annual operations and maintenance report would not be required for Operable Unit (OU) 2-13 in WAG 2. Because of the nature of the remedies selected and completed at these sites, it was determined that an institutional control inspection report would fulfill the requirements to ensure that the remedies and institutional controls remain protective of human health and the environment. It was hrther agreed that these reports would be prepared and submitted on an annual basis for a period of not less than 5 years. The third such report, the *FY-2002 Annual Institutional Controls Inspection Report for the Test Reactor Area, Operable Units 2-13 and 2-14 (Final)* (INEEL 2002) was submitted to the Agencies in October 2002. Subsequent annual reports must be prepared in accordance with the *Operations and Maintenance Plan for the Final Selected Remedies and Institutional Controls at Test Reactor Area, Operable Unit 2-13* (DOE-ID 2000b, Section 7). As a result of the Agency review of the FY-2002 Institutional Controls Inspection Report, it was determined that hture inspections should be conducted only for those 15 sites identified in the OU 2-13 ROD (DOE-ID 1997b), as amended by the *Explanation of Signzjcant Differences to the Record of Decision for Test Reactor Area Operable Unit 2-13* (DOE-ID 2000a). The 15 sites are as follows:

- TRA PCB Spill at TRA-619
- TRA PCB Spill at TRA-626

- TRA PCB Spill at TRA-653
- TRA North Storage Area (TRA-34)
- TRA Hot Waste Tank #s 2, 3, & 4 at TRA-613
- TRA Radioactive Tank #s 1 & 4, replaced by Tank #s 1, 2, 3, & 4 (TRA-19)
- TRA Cold Waste Disposal Pond at TRA-702 (TRA-08)
- TRA Final Sewage Leach Ponds (2) at TRA-732 (TRA-13)
- Sewage Leach Pond Soil Contamination Area
- TRA Warm Waste Pond Sediments (TRA-03B)
- TRA Warm Waste Retention Basin at TRA-712 (TRA-04)
- Perched Water RI/FS
- TRA Chemical Waste Pond at TRA-701 (TRA-06)
- Brass Cap Area
- Hot Tree Site

5.1.3 Five-Year Reviews

In accordance with the requirements of 40 *Code of Federal Regulations* (CFR) 300, "National Oil and Hazardous Substances Pollution Contingency Plan," for sites where contamination is left in place above risk-based concentrations, a review of the selected remedy is required to be conducted by the lead federal agency on no less than a 5-year cycle, or until it is determined by the Agencies to be unnecessary. The purpose of the reviews is to evaluate the implemented remedies and determine whether they are functioning as intended and remain protective of human health and the environment. Identical to the performance of operation and maintenance activities, these reviews must include only the 15 sites identified in the OU 2-13 ROD and OU 2-13 Explanation of Significant Differences (DOE-ID 1997b, 2000a). Based on the results of the 5-year reviews, institutional controls may be removed or added, and waste sites may be removed from hrther review, with the approval of the Agencies.

5.1.4 Limited Action Sites with Contingent Excavation and Disposal Options

In accordance with the OU 2-13 ROD (DOE-ID 1997b), the selected remedies for two of the sites in WAG 2 were limited action with contingency for excavation and disposal. The sites where this remedy was selected are identified as TRA-19 (TRA Rad Tanks 1 and 4 at TRA-630) and the Brass Cap Area. This remedy is defined in the OU 2-13 ROD as "essentially continued management practices and institutional controls" for the directed timeframe. The assumption that this selected remedy is protective of human health and the environment in a residential scenario is valid only for a period not to exceed 100 years.

5.1.5 New Sites

Subsequent to the issuance of the OU 2-13 ROD in December 1997, 17 new sites were identified at TRA. One site, the Gamma Building TRA-641 Warm Waste Line to Catch Tank Vault TRA-730 (TRA-61), was determined to not meet the criteria for acceptance under the FFA/CO (DOE-ID 1991a) and was not recommended for inclusion. Initial assessments and evaluations of the remaining 16 sites have been completed, and recommendations have been made regarding hture actions. However, identification of the risks associated with these sites (if any) have not been completed, and the sites have been transferred into OU 10-08 for hrther evaluation under the OU 10-08 RI/FS. The OU 10-08 RI/FS is due to the Agencies in July 2018. Any newly identified sites that are found after the publication of this report have the option to be evaluated under the OU 10-08 RI/FS and subsequent ROD.

Until the sites are properly evaluated, preventive measures have been implemented to restrict and control access and to ensure that no man-made disturbance of the sites occurs. The sites remain the responsibility of the Idaho Completion Project, and are identified in Table 2, where the section titled "New Sites Identified Post-ROD" presents the recommendations regarding hture actions.

5.1.6 Maintenance of Vegetation

The Idaho Completion Project will retain responsibility for the inspection and maintenance of native soil covers on the Chemical Waste Pond and Sewage Leach Pond, and for vegetation on the Sewage Leach Pond soil contamination area. Additionally, the Idaho Completion Project will inspect and maintain the engineered cover on the Warm Waste Pond. The activities will be performed in accordance with requirements delineated in the *Operations and Maintenance Plan for the Final Selected Remedies and Institutional Controls at Test Reactor Area, Operable Unit 2-12* (DOE-ID 2000b).

5.1.7 Responsibility for Sites Currently Listed in the Federal Facility Agreement and Consent Order

The Idaho Completion Project will retain responsibility for all inactive sites currently listed in the FFA/CO. If circumstances indicate that a site was not evaluated correctly, the Idaho Completion Project will retain responsibility for any necessary actions required to mitigate the situation. However, if ongoing activities at the facility have caused new contamination at a previously determined inactive site, this new contamination would qualify as a new source or new site, and the Nuclear Energy organization will be responsible for funding any investigation and action required to mitigate the situation.

5.1.8 Complete Characterization of Warm Waste Line Release

The Idaho Completion Project will retain responsibility for completing the characterization of the warm waste line release and any resulting corrective action.

5.1.9 Complete Initial Characterization of Diesel in Well PW-13

The Idaho Completion Project will complete the initial characterization of the continuing source of diesel in Well PW-13 to determine if a new source exists. If it is determined that the previously identified source continues to release diesel into the well, then the Idaho Completion Project will be responsible for any corrective action. If it is determined that a new active source is causing the current presence of diesel in the well, then this would qualify as a new source and therefore a new site, and the Nuclear Energy organization will be responsible for mitigating the situation.

5.1.10 Complete Initial Characterization of Cobalt-60 Release

The Idaho Completion Project will complete the initial investigation to evaluate the increasing trend of cobalt-60 in Well PW-12, and will attempt to identify the source. If it is determined that a previously identified source is the cause of the increasing concentrations, then the Idaho Completion Project will be responsible for any corrective action. If it is determined that a new, active source is responsible for the increasing trend, then the Nuclear Energy organization will be responsible for mitigating the situation.

5.2 Future Nuclear Energy Organization Responsibilities

The Nuclear Energy organization will be responsible for any newly identified sites resulting from releases from active sites identified at TRA. In addition, the Nuclear Energy organization will be responsible for identification of any new contaminant sources (e.g., cobalt-60) from active sites and the corrective actions to mitigate them. The Nuclear Energy organization will be responsible if the continuing source of diesel in Well PW-13 is linked to a new active site at TRA. Evaluation of the 20 or more additional years of continuing operations at TRA and the impact on the percolation pond and contaminant transport also will be the responsibility of the Nuclear Energy organization. At the discretion of the Nuclear Energy organization, the new sites or release sites may be addressed either under the FFA/CO (DOE-ID 1991a) if they qualify as a solid waste management unit, as a RCRA corrective action, or as an emergency response. The Nuclear Energy organization will retain the option of addressing these sites either internally, through the use of resources held by the Idaho Completion Project, or by outside subcontractors.

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